

**AMENDMENTS TO THE DRAWINGS**

**Replacement formal drawings of Figures 1-4 are submitted concurrently herewith under a separate cover letter.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Takuya MATSUMOTO et al.

Serial No. 10/533,136

Filed April 29, 2005

SPRAY GUN FOR ELECTROSTATIC  
PAINTING



Confirmation No. 2298

Attorney Docket No. 2005\_0711A

Group Art Unit 3752

Examiner Darren W. Gorman

Mail Stop: AMENDMENT

**SUBMISSION OF REPLACEMENT FORMAL DRAWINGS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

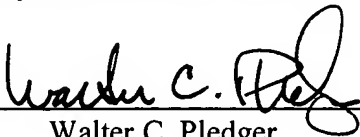
Sir:

Enclosed herewith are two sheets of replacement formal drawings (Figs. 1-4) submitted in response to objections contained in the Office Action of July 3, 2008 in the above-identified application.

On pages 2-3 of the Office Action, the Examiner objected to the drawings as being improper. In particular, the Examiner notes that Fig. 3 includes reference number "57" which is not identified in the specification. Further, the Examiner indicates that the word "registance" in Fig. 2 should be replaced with the word "resistance." In order to address these objections, it is noted that the reference number "57" has been deleted in replacement Fig. 3, and that the word "registance" has been replaced with the word "resistance" in replacement Fig. 2. No amendments have been made in replacement Figs. 1 and 4, and no new matter has been added by the amendments to Figs. 2 and 3. Therefore, entry of replacement Figs. 1-4 is respectfully requested.

Respectfully submitted,

Takuya MATSUMOTO et al.

By: 

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December 3, 2008

### **REMARKS**

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of July 3, 2008 is respectfully requested.

By this Amendment, claims 1-15 have been cancelled and new claims 16-23 have been added and are currently pending in the application. No new matter has been added by these amendments.

The entire specification has been reviewed and revised. Due to the number of revisions, the amendments to the specification have been incorporated into the attached substitute specification. For the Examiner's benefit, a marked-up copy of the specification indicating the changes made thereto is also enclosed. No new matter has been added by the revisions. Entry of the substitute specification is thus respectfully requested.

On pages 2-3 of the Office Action, the Examiner objected to the drawings as being improper. In particular, the Examiner notes that Fig. 3 includes reference number "57" which is not identified in the specification. Further, the Examiner indicates that the word "registance" in Fig. 2 should be replaced with the word "resistance." In order to address these objections, replacement Figs. 1-4 have been submitted under separate cover along with this amendment. It is noted that the reference number "57" has been deleted in replacement Fig. 3, and that the word "registance" has been replaced with the word "resistance" in replacement Fig. 2. No amendments have been made in replacement Figs. 1 and 4, and no new matter has been added by the amendments to Figs. 2 and 3. Therefore, entry of replacement Figs. 1-4 is respectfully requested, and it is respectfully submitted that the Examiner's objections are not applicable to replacement Figs. 1-4.

On page 4 of the Office Action, the Examiner objected to claims 1-10 and 12-14 due to the identified informalities. In order to address these objections, it is noted that the original claims have been cancelled and replaced with new claims 16-23, and that new claims 16-23 have been drafted so as to correct all of the informalities identified by the Examiner. Accordingly, it is respectfully submitted that the Examiner's objections are not applicable to new claims 16-23.

On pages 4-7 of the Office Action, the Examiner rejected claims 1-15 under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Examiner asserted that the claims

include several limitations which lack proper antecedent basis, and that the claims include phrases which are unclear and render the scope of the claims vague and indefinite. In order to address these formal rejections, and in order to place the original claims in a proper form according to U.S. practice, the original claims have been cancelled and replaced with new claims 16-23, and the new claims have been drafted so as to fully comply with all the requirements of 35 U.S.C. § 112. Therefore, it is respectfully submitted that the Examiner's formal rejections under § 112 are not applicable to the new claims.

On pages 8-9 of the Office Action, the Examiner rejected claims 5, 8-10 and 12-14 under 35 U.S.C. § 102(b) as being anticipated by Luderer et al. (US 3,937,401). On pages 9-12 of the Office Action, the Examiner rejected claims 1-4, 6, 7, 11 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Luderer. However, as indicated above, claims 1-15 have been cancelled and replaced with new claims 16-23. For the reasons discussed below, it is respectfully submitted that the new claims are clearly patentable over the prior art of record.

New independent claim 16 recites a hand-held electrostatic-painting spray gun comprising an atomizer provided at a forward end of the spray gun, an external charging electrode disposed at an outer portion of the spray gun so as to project ahead of the atomizer, the external charging electrode being separated from a passage through which paint is to be supplied to the atomizer, an electroconductive grip provided behind the atomizer, and an electrode receptacle provided at an outer portion of a barrel the spray gun. Claim 16 also recites that an output terminal connected to a high voltage generator via a first high-resistance resistor maintaining electrical insulation from the passage through which paint is to be supplied, is connected to an electrical connecting portion provided at a bottom of the electrode receptacle, with the external electrode being exposed at a forward end thereof and having a plug-in portion formed at a rear end thereof, the plug-in portion having a connecting terminal, and the electrode and the connecting terminal being connected by a conductor.

Further, claim 16 recites that the connecting terminal and the electrical connecting portion are connectable by plugging the plug-in portion into the electrode receptacle. Claim 16 also recites that *the external electrode includes an engagement piece and the electrode receptacle includes a retention recess, with the external electrode being freely connectable to and*

*disconnectable from the electrode receptacle, and that the external electrode is connectable to the electrode receptacle by plugging the plug-in portion into the electrode receptacle such that the engagement piece engages the retention recess.*

Luderer discloses an electrostatic spray gun which, as shown in Figs. 1-6, includes a barrel 10 and a flange 30 projecting from the barrel 10. Further, Luderer discloses that the flange 30 has three bores 31, 32 and 33. In addition, the spray gun of Luderer includes an extension body 34 having a conductor 15 embedded in the extension body 34.

However, Luderer does not disclose that *the external electrode includes a plug-in portion and an engagement piece, that the electrode receptacle includes a retention recess, and that the external electrode is connectable to the electrode receptacle by plugging the plug-in portion of the external electrode into the electrode receptacle such that the engagement piece engages the retention recess*, as required by independent claim 16. Rather, Luderer only discloses that the extension body 34 is releasably plugged into the bores 31, 32 and 33, and does not disclose that the external electrode includes a plug-in portion and an engagement piece, that the electrode receptacle includes a retention recess, and that the external electrode is connectable to the electrode receptacle by plugging the plug-in portion of the external electrode into the electrode receptacle such that the engagement piece engages the retention recess, as required by independent claim 16. Therefore, it is respectfully submitted that Luderer does not anticipate independent claim 16.

New independent claim 21 recites an electrostatic-painting spray gun comprising an atomizer provided at a forward end of the spray gun, an external charging electrode disposed at an outer portion of the spray gun so as to project ahead of the atomizer, and an electrode receptacle provided at an outer portion of the spray gun, an output terminal of a high voltage generator being connected to the electrode receptacle, wherein the external electrode is freely attachable to and removable from the electrode receptacle, *with the electrode receptacle having a plurality of grooves formed along an outer surface of the electrode receptacle so as to define a plurality of projections*. Further, claim 21 recites that the external electrode includes an electrode body formed from an insulative material, with the electrode body having a charging electrode provided so as to be exposed at a forward end thereof and a plug-in portion formed at a rear end

thereof, the plug-in portion having a connecting terminal arranged to electrically connect to the electrode receptacle so as to conduct electricity from the electrode receptacle to the charging electrode, and with *the plug-in portion having a plurality of grooves formed along an outer surface of the plug-in portion so as to define a plurality of projections.*

Claim 21 also recites that the plug-in portion is attachable to the electrode receptacle *by inserting the projections of the plug-in portion into respective grooves of the electrode receptacle and by inserting the projections of the electrode receptacle into respective grooves of the plug-in portion, wherein a corrugated boundary surface formed by outer surfaces of the grooves and projections of the electrode receptacle and the plug-in portion is defined between an exposed end of the outer surface of the plug-in portion and an electrical connection formed between the connecting terminal and the electrode receptacle so as to provide a long creepage distance.*

As indicated above, Luderer discloses an electrostatic spray gun which, as shown in Figs. 1-6, includes a barrel 10 and a flange 30 projecting from the barrel 10. Further, Luderer discloses an extension body 34 having a conductor 15 embedded in the extension body 34, and that the extension body 34 is releasably plugged into bores 31, 32 and 33 of the flange 30.

However, Luderer does not disclose an electrode receptacle having a plurality of grooves formed along an outer surface of the electrode receptacle so as to define a plurality of projections, and a plug-in portion of the electrode body having a plurality of grooves formed along an outer surface of the plug-in portion so as to define a plurality of projections, and therefore does not disclose that the plug-in portion is attachable to the electrode receptacle by inserting the projections of the plug-in portion into respective grooves of the electrode receptacle and by inserting the projections of the electrode receptacle into respective grooves of the plug-in portion, wherein a corrugated boundary surface formed by outer surfaces of the grooves and projections of the electrode receptacle and the plug-in portion is defined, as required by independent claim 21. Accordingly, it is respectfully submitted that Luderer does not anticipate independent claim 21.

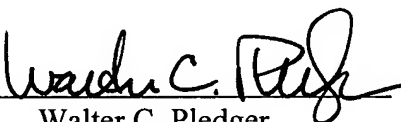
Therefore, it is respectfully submitted that independent claims 16 and 21, as well as claims 17-20 and 22-23 which depend therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice to that effect is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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